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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/779,866	02/08/2001	James E. Pricer	9517	6672
26890	7590	02/26/2004	EXAMINER	
JAMES M. STOVER NCR CORPORATION 1700 SOUTH PATTERSON BLVD, WHQ4 DAYTON, OH 45479				HAMILTON, MONPLAISIR G
ART UNIT		PAPER NUMBER		
		12		

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/779,866	PRICER, JAMES E.	
	Examiner	Art Unit	
	Monplaisir G Hamilton	2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 05 December 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20,22-24,26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) 21 and 25 is/are cancelled.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-20,22-24,26 and 27 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some *
 - c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/5/03 has been entered.

The communication filed on 12/05/03 cancelled Claims 21 and 25 and amended Claims 1, 3, 4, 7-14, 20, 22-24 and 26-27. Claims 1-20, 22-24 and 26-27.

Response to Arguments

2. Applicant's arguments with respect to Claims 1-20, 22-24 and 26-27 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 7 recites the limitation "concatenated order number" in line 12, the analysis limitation. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention. Applicant has recited N specified items but does not explicitly define N. This renders the claim indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 6, 14-20 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6430539 issued to Lazarus et al (filed 5/6/99), herein referred to as Lazarus.

Referring to Claims 1 and 20:

Lazarus discloses a method for use in analyzing associations in the sequence of transactions, the method comprising:

loading data from the transactions into a database system, where the data includes an entry for each transaction (col 10, lines 40-50) and the transactions are grouped into sessions (col 3, lines 25-35);

ordering the transactions in sequence within each session (col 3, lines 28-33); and performing an analysis of the sessions of transactions to find associations in the sequence of the transactions in the sessions (col 4, lines 45-50; col 5, lines 15-25, 50-55).

Referring to Claim 2:

Lazarus discloses the limitations of Claim 1 above. Lazarus further discloses wherein the data for each transaction includes a time stamp related to a time that the transaction occurred (col 14, lines 30-35; Table 3) and wherein ordering the transactions comprises numbering the transactions based on the time stamps included in the data for the transactions (col 3, lines 20-40).

Referring to Claim 3:

Lazarus discloses the limitations of Claim 2 above. Lazarus further discloses wherein numbering the transactions comprises numbering the transactions in sequence from the transaction having the earliest time stamp to the transaction having the latest time stamp (col 3, lines 30-40).

Referring to Claim 4:

Lazarus discloses the limitations of Claim 1 above. Lazarus further discloses wherein loading the data from the transactions into the database system comprises parsing the data for each transaction into fields in the database system (col 15, lines 20-50); and identifying one of the fields as a session identifier field where a session identifier for each transaction is stored (col 14, lines 59-60, Account id, pop_id, Table 4).

Referring to Claim 6:

Lazarus discloses the limitations of Claim 1 above. Lazarus further discloses wherein performing the analysis comprises performing an affinity (relationship) analysis (col 4, lines 45-60; col 5, lines 15-25, 50-55).

Referring to Claim 14:

Lazarus discloses a method for use in analyzing associations in the order of transactions, the method comprising loading data from the transactions into a database system, where the data includes an entry for each transaction (col 14, lines 25-35; Table 3) and wherein loading the data comprises grouping the transactions into groups (col 15, lines 55-60); selecting sessions of transactions belonging to the same group and corresponding to a single session (col 3, lines 25-40); ordering the transactions in sequence within each session (col 3, lines 25-40); and performing an analysis of the sessions of transactions to find associations in the sequence of the transactions in the sessions (col 5, lines 15-25, 50-55).

Referring to Claim 15:

Lazarus discloses the limitations of Claim 14 above. Lazarus further discloses wherein each entry includes a time stamp related to a time that the transaction occurred and selecting comprises selecting entries with time stamps lying in a predetermined range (col 3, lines 25-50).

Referring to Claim 16:

Lazarus discloses the limitations of Claim 15 above. Lazarus further discloses wherein ordering comprises numbering the selected entries based on their respective time stamps (col 3, lines 20-40).

Referring to Claim 17:

Lazarus discloses the limitations of Claim 15 above. Lazarus further discloses wherein numbering comprises numbering the selected entries from the earliest to the latest (col 3, lines 30-40).

Referring to Claim 18:

Lazarus discloses the limitations of Claim 16 above. Lazarus further discloses wherein numbering comprises numbering the selected entries from the latest to the earliest (col 3, lines 30-40).

Referring to Claim 19:

Lazarus discloses the limitations of Claim 16 above. Lazarus further discloses wherein numbering comprises numbering the selected entries based on their respective distance in time from a reference time (col 3, lines 25-50).

Referring to Claim 22:

Lazarus discloses the limitations of Claim 1 above. Lazarus further discloses where each entry includes a time stamp related to a time that the transaction occurred (col 14, lines 25-35, Table 3) and where, in selecting sessions, the computer selects entries with time stamps lying in a predetermined range (col 3, lines 25-45).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6430539 issued to Lazarus et al (filed 5/6/99), herein referred to as Lazarus further in view of US 5974396 issued to Anderson et al (filed 7/19/96), herein referred to as Anderson.

Referring to Claim 5:

Lazarus discloses the limitations of Claim 4 above.

Lazarus does not explicitly disclose “wherein loading the data from the transactions into the database system further comprises identifying one of the fields as an item identifier field where an item identifier for each transaction is stored”.

Anderson discloses wherein loading the data from the transactions into the database system further comprises identifying one of the fields as an item identifier field where an item identifier for each transaction is stored (col 10, lines 10-30).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify Lazarus such that the master file database includes an item identifier for each transaction. One of ordinary skill in the art would have been motivated to do this because it

would allow the system to query the database for a particular item/product cluster(col 10, lines 40-60).

6. Claim 24 and 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6430539 issued to Lazarus et al (filed 5/6/99), herein referred to as Lazarus further in view of WO00/20998 by Miller et al, herein referred to as Miller (filed 10/1/99).

Referring to Claim 24:

Lazarus discloses a database system for use in analyzing associations in the order of transactions, the database system comprising a parsing engine configured to parse transaction data and store the parsed transaction data in a table that is distributed across two or more data-storage facilities (col 10, lines 40-50); Fig 4), where the data includes an entry for each transaction and the transactions are grouped into sessions groups (col 3, lines 25-35; col 15, lines 55-60); a database-management component configured to operate on the table to order the transactions in sequence within each session (col 3, lines 28-33); and perform an analysis of the sessions of transactions to find associations in the sequence of the transactions in the sessions (col 4, lines 45-50; col 5, lines 15-25, 50-55).

Lazarus does not explicitly discloses “a massively parallel processing system comprising one or more nodes; a plurality of CPUs, each of the one or more nodes providing access to one or more CPUS; a plurality of virtual processes each of the one or more CPUs providing access to one or more virtual processes; each virtual process configured to manage data stored in one of a plurality of data-storage facilities”.

Miller discloses a massively parallel processing system comprising one or more nodes (page 6, lines 5-15); a plurality of CPUs, each of the one or more nodes providing access to one or more CPUs (page 6, lines 10-15); a plurality of virtual processes each of the one or more CPUs providing access to one or more virtual processes (page 6, lines 15-25); each virtual process configured to manage data stored in one of a plurality of data-storage facilities (page 6, lines 10-25).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify Lazarus such that the system operated in a parallel processing environment. One of ordinary skill in the art would have been motivated to do this because it would provide a mechanism that could significantly improve performance, efficiency and scalability of mining associations (Miller: page 9, lines 1-5).

Referring to Claim 26:

Lazarus in view of Miller disclose the limitations of Claim 24 above. Lazarus further discloses where each entry includes a time stamp related to a time that the transaction occurred (col 14, lines 25-35, Table 3) and where, in selecting sessions, the computer selects entries with time stamps lying in a predetermined range (col 3, lines 25-45).

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7. Claims 7-13, 23, 27 rejected under 35 U.S.C. 103(a) as being obvious over US 6430539 issued to Lazarus et al (filed 5/6/99), herein referred to as Lazarus in view of US 6611829 issued to Tate et al, herein referred to as Tate further in view of US 5806074 issued to Souder et al, herein referred to as Souder.

The applied reference (Tate) has a common assignee and inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Referring to Claim 7, 23 and 27:

Lazarus discloses the limitations of Claim 1 above. Lazarus further discloses parsing the transaction data into fields in a base table in the database system (col 13, lines 5-10; Table 3; col 15, lines 50-55); identifying one of the fields as a session identifier field where a session identifier for each transaction is stored (Table 3, col 14, lines 25-30; Account id, pop_id);

Lazarus does not explicitly disclose “identifying one of the fields as an item-identifier field where an item identifier for each transaction is stored; ordering the transactions in each session of transactions in sequence comprises concatenating a sequence number to the item identifier for each transaction; performing the analysis comprises building one or more support tables for one or more item identifiers with concatenated order number; and calculating support, confidence and lift by joining the support tables.

Tate discloses loading data from the transactions into the database system comprises identifying one of the fields as an item identifier field where an item identifier for each transaction is stored (col 9, lines 10-15); performing the analysis comprises building one or more support tables for one or more item identifiers with concatenated order number; and calculating support, confidence and lift by joining the support tables (col 13, lines 15-23).

Lazarus in view of Tate does not explicitly disclose “ordering the transactions in each session of transactions in sequence comprises concatenating a sequence number to the item identifier for each transaction”.

Souder disclose ordering the transactions in each session of transactions in sequence comprises concatenating a sequence number to the item identifier for each transaction (col 12, lines 35-45).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of Lazarus such an item identifier is stored and used to calculate support confidence and lift. One of ordinary skill in the art would have been motivated to do this because it would provide a data mining application that discovers relationships between items (Tate: col 3, lines 1-10).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of Lazarus in view of Tate such that ordering the transactions in sequence comprises concatenating a sequence number to the item identifier for each transaction. One of ordinary skill in the art would have been motivated to do this because it would ensure that duplicate transaction occurring at different points in time are accounted for. Furthermore, it would allow for each transaction to have a unique identifier (Souder col 12, lines 35-44).

Referring to Claim 8:

Lazarus and Tate in view of Souder disclose the limitation of Claim 7 above. Tate further discloses wherein building the one or more support tables comprises counting the transactions containing various combinations of item identifiers with concatenated sequence number and dividing the count by a total number of sessions to obtain a support for each of the combinations (col 9, lines 40-50).

Referring to Claim 9:

Lazarus and Tate in view of Souder disclose the limitation of Claim 7 above. Tate further discloses wherein building the one or more support tables comprises for each item identifier with concatenated sequence number, counting the transactions containing the same item identifier with concatenated sequence number and computing the support by dividing the count by a total number of sessions-groups and storing the item identifier with concatenated sequence order number and the support in a first support table (col 9, lines 45-60).

Referring to Claim 10:

Lazarus and Tate in view of Souder disclose the limitation of Claim 9 above. Tate further discloses wherein building the one or more support tables further comprises building a second base table by selecting transactions from the first base table that include an item identifier corresponding to an item identifier and concatenated sequence order number having a support more than a predetermined value (col 9, lines 50-60).

Referring to Claim 11:

Lazarus and Tate in view of Souder disclose the limitation of Claim 10 above. Tate further discloses wherein building the one or more support tables further comprises counting the transactions in the second base table containing various combinations of item identifiers with concatenated sequence number and dividing the count by a total number of sessions in the second base table to obtain a support for each of the combinations (col 9, lines 50-60).

Referring to Claim 12:

Lazarus and Tate in view of Souder disclose the limitation of Claim 10 above. Tate further discloses wherein building the one or more support tables further comprises counting the transactions in the second base table containing combinations of two specified item identifiers with concatenated sequence number and dividing the count by a total number of transactions in the second base table to obtain a support for each of the combinations; and storing the item identifiers and computed support in a two item support table (col 9, lines 50-60).

Referring to Claim 13:

Lazarus and Tate in view of Souder disclose the limitation of Claim 10 above. Tate further discloses wherein building the one or more support tables further comprises counting the transactions in the second base table containing combinations of N specified item identifiers with concatenated sequence number and dividing the count by a total number of transactions in the second base table to obtain a support for each of the combinations; and storing the item identifiers and computed support in an N item support table (col 9, lines 50-60).

Prior Art

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6226634 issued to Ogihara, Kazutaka et al. Ogihara discloses a group-by processing system performs a specified operation computing average value, etc. on a group of records having the same key value, efficiently accesses a secondary storage device, and realizes a high

speed process. The group-by processing system includes a unit for storing records; a unit for storing pointers to the records in the unit for storing records at positions, each of which corresponds to a hash function value calculated using the key value of the pointed record; a unit for outputting the records pointed to by the pointers in the unit for storing pointers to secondary storage device, given the hash function values; and a unit for reading a list of output hashed records, sorting the records by key value, and performing a group-by-operation on the sorted records. The system also includes a combination generation unit for outputting a combination of two or more items satisfying a combination generation restriction condition; an occurrence count unit for counting occurrences of the combinations; a combination selection unit for selecting the combination which satisfies the given condition of the number of occurrences; and a restriction condition generation unit for assigning the restriction condition to the combination generation unit according to the selection result. The combinations of items can be counted efficiently by performing a high-speed group-by operation.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monplaisir G Hamilton whose telephone number is 1703-305-5116. The examiner can normally be reached on Monday - Friday (8:00 am - 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on 1703-305-9790. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Monplaisir Hamilton



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PRIMARY EXAMINER